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EXAMINER	
ZHEN, LI B	

ART UNIT	PAPER NUMBER
2126	14

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/339,649	Applicant(s) BAIRD ET AL.	
	Examiner Li B. Zhen	Art Unit 2126	

-- The MAILING DATE of this communication appears on the cover sh et with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-8,10-23 and 25-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-8,10-23 and 25-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Claims 1-4,6-8,10-23 and 25-32 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 – 4, 6 – 8, 10 – 23, and 25 – 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,389,466 to Zondag in view of U.S. Patent No. 5,574,860 to Perlman.

4. As to claim 15, Zondag teaches a plurality of software controllable devices [Full AV Device; col. 7, line 55 - col. 8, line 19] that contain an embedded operating system [software elements...reside above a...platform 210, such as a Real-time Operating System; col. 8, lines 50 - 67] and represented by a plurality of control objects [AR is a software element] that maintain a list of logical attributes of the devices [Within an AR several FCMs are contained representing the functional components of the device; col. 11, lines 13 - 33], the control object accepting and issuing control messages [commands] to and from the respective ones of the devices [Messaging System, col. 11, lines 1 – 32], and the control object being a component object model object [AR comprises code for the AR itself plus code for Functional Component Modules for each functional component within the controlled station; col. 8, line 50 - col. 9, line 25] and polymorphic such that the control object is adapted to take on the logical attributes and

command and control capabilities of any of the devices [AR is capable of being used to control a range of controllable stations...the controller station obtains additional information of the actual controlled station involved...and adjusts the generic AR to operate optimally for the specific controlled station; col. 9, lines 42 - 55], a method of registering the control objects [ARs and FCMs make themselves known via the Registry; col. 12, lines 30 - 42], comprising:

determining if the enabled control object is a first registered control object [using the unique identifiers, each station can simply determine whether it is the leader or not...the decision may, for instance, be based on determining the highest or lowest identifier; col. 5, lines 36 - 45]; and

appointing the first registered object as a manager object [each station can simply determine whether it is the leader or not...the decision may, for instance, be based on determining the highest or lowest identifier; col. 5, lines 36 - 45] to administer the list [any FAV or IAV can be selected as leader see the leader election process; col. 16, lines 5 - 54].

5. Zondag does not specifically teach the manager object periodically broadcasting the list to all registered control objects.

However, Perlman teaches [col. 5, lines 39 - 45; col. 6, lines 22 - 28] a method of generating, distributing and maintaining a list of operational nodes in a network and the manager object [designated node] periodically broadcasting the list to all the registered control [node] objects [designated node periodically sends a DN Hello message to all of

the nodes...the DN Hello message includes a complete list of nodes; col. 6, lines 20 – 50].

6. It would have been obvious to a person of ordinarily skilled in the art at the time of the invention to apply the teaching of allowing the manager object to periodically broadcasting the list of registered control objects to all the control objects as taught by Perlman to the invention of Zondag because this would allow every control object to periodically receive a list of registered control objects [see abstract of Perlman] so that all of the control objects are aware of the identities of the other control objects connected to the network [col. 6, lines 25 – 28 of Perlman].

7. As to claim 20, Zondag as modified by Perlman teaches a plurality of software controllable devices [Full AV Device; col. 7, line 55 - col. 8, line 19] that contain an embedded operating system [software elements...reside above a...platform 210, such as a Real-time Operating System; col. 8, lines 50 - 67] and communicate over a network [controller stations are connected via the main communication network 120, Fig. 1; col. 7, lines 5 - 23];

a plurality of control objects [AR is a software element] residing in the embedded operation system of respective ones of the software controllable devices [software elements...reside above a...platform 210, such as a Real-time Operating System; col. 8, lines 50 - 67], comprising component object model objects [AR comprises code for the AR itself plus code for Functional Component Modules for each functional component within the controlled station; col. 8, line 50 - col. 9, line 25] and including logical

attributes [Within an AR several FCMs are contained representing the functional components of the device; col. 11, lines 13 - 33] of the devices, the control objects accept and issue control messages [commands] to and from the devices [Messaging System, col. 11, lines 1 – 32], the control objects are adapted to take on the logical attributes and command and control capabilities of any of the devices [AR is capable of being used to control a range of controllable stations...the controller station obtains additional information of the actual controlled station involved...and adjusts the generic AR to operate optimally for the specific controlled station; col. 9, lines 42 - 55];

the control objects register with the system [ARs and FCMs make themselves known via the Registry; col. 12, lines 30 - 42] and assigned an random unique identifier [allocating identifiers for the software elements of that device...identifiers are firstly used by the software elements to register; col. 11, lines 1 - 13] and are active while the respective devices are functioning [for each controlled station at most one installed AR code unit is actively running; col. 13, lines 52 - 62], and the control objects maintain a list [registry] of all other registered control objects [Registry 238 serves as a directory service; col. 10, lines 23 - 26] and their logical attributes [applications can query the registry to find out the devices and functional components available; col. 11, lines 15 - 31]; and

a first registered control object of the plurality of control object is designated as manager object [using the unique identifiers, each station can simply determine whether it is the leader or not...the decision may, for instance, be based on determining the highest or lowest identifier; col. 5, lines 36 - 45], the list contains the logical attributes

[functional components], random unique identifier [query the registry to find out the devices and functional components available and to get a software element identifier; col. 11, lines 15 - 31] and address of all registered control objects [URL designating the location of an AR code unit; col. 14, lines 63 - 66] and any control object can function as manager object [any FAV or IAV can be selected as leader see the leader election process; col. 16, lines 5 - 54]. As to the manager object periodically broadcasting the list to all registered control objects, Perlman teaches [col. 5, lines 39 - 45; col. 6, lines 22 - 28] a method of generating, distributing and maintaining a list of operational nodes in a network and the manager object [designated node] periodically broadcasting the list to all the registered control [node] objects [designated node periodically sends a DN Hello message to all of the nodes...the DN Hello message includes a complete list of nodes; col. 6, lines 20 – 50].

8. As to claim 28, this is the same as claim 20 except for the limitation "at least one software controllable device". Claim 20 recites "a plurality of software controllable devices" which would include at least one software controllable device. Refer to the rejection of claim 20 above, which also meets this claim.

9. As to claims 25 and 31, Zondag teaches a user interface [a user interface for the station and allows external control of the station; col. 7, lines 23 – 43] adapted to receive the control objects [controller obtains the user interface and control code; col. 7, lines 23 – 43], retrieve the logical attributes [query the registry to find out the devices

and functional components available and to get a software element identifier; col. 11, lines 15 - 31], accept and issue control messages to and from the control object [commands for the AR are translated to and from the command protocol used by the BAV device; col. 8, lines 20 - 33], and control the devices across the network and locally [upload an AR from other stations or via other local area or wide area communication networks and so provide enhanced capabilities for their control; col. 7, line 60 – col. 8, line 8].

10. As to claim 1, this is a combination of system claims 20 and 25 with additional limitations; note the rejections of claims 20 and 25 above. As to the additional limitation, Zondag teaches when a manager drops out of the distributed system, a subsequently registered object is appointed manager object [at each moment a network reset event (or other trigger causing an installation/removal) can occur...each AR Manager (re)starts the leader election when this event is received as soon as possible; col. 15, line 65 – col. 16, line 5].

11. As to claims 11 – 12, they are rejected for the same reason as claims 25 and 31 above.

12. As to claims 2, 21 and 29, Zondag teaches the control object are adapted to bind to any transport mechanism for communication with other control objects [messaging

system 232 provides the software elements with communication facilities...it is independent of the network and transport layers; col. 11, lines 1 – 5].

13. As to claim 3, Zondag teaches the control object is embedded in an application [embedded AR; col. 9, lines 33 – 40] and executed within a wrapper executable [control interface is exposed via the API of this AR; col. 7, lines 23 – 43].

14. As to claims 4 and 23, Zondag teaches software controllable devices comprising application programming interfaces [control interface is exposed via the API of this AR; col. 7, lines 23 – 43]. As to the devices containing an operating system, see the rejection to claim 20 above.

15. As to claim 6, Zondag teaches the control objects [AR] providing wrappers [API] for clients [control interface is exposed via the API of this AR; col. 7, lines 23 – 43].

16. As to claim 7, Zondag teaches control objects utilize transport DLLs [transport mechanism] for transporting data [provide a transport mechanism to send requests to and receive indications from the remote devices; col. 10, lines 40 – 67].

17. As to claims 8, 22 and 30, Zondag teaches control objects comprise extensions [AR implemented using downloadable code; col. 9, lines 35 – 43] and the control objects logically and physically pass a control signal to the devices [a transport

mechanism to send requests to and receive indications from the remote devices; col. 10, lines 40 – 67] and the control objects are adapted to send a message to an interface in the device [a software element wants to send messages to another software element it has to use the software element identifier of B while invoking the messaging system API; col. 11, lines 1 – 13].

18. As to claim 10, Zondag teaches the list contains the logical attributes [functional components], an identifier [query the registry to find out the devices and functional components available and to get a software element identifier; col. 11, lines 15 - 31] and an address of all registered control objects on the system [URL designating the location of an AR code unit; col. 14, lines 63 - 66].

19. As to claims 13, 26 and 32, Zondag teaches the user interface is transparent across the network [external control of the station] and the user interface takes on the personality of the respective physical device [controlled station could contain code that constructs a user interface for the station and allows external control of the station...when such a station is first connected, the controller obtains the user interface and control code; col. 7, lines 23 – 55].

20. As to claims 14 and 27, Zondag teaches a physical device that comprises a display [icon representing the station may then appear on the television screen; col. 7, lines 23 – 45] and the display is adapted to control others of the devices via the network

and the control objects [controlled station could contain code that constructs a user interface for the station and allows external control of the station; col. 7, lines 23 – 55].

21. As to claim 16, Zondag as modified teaches [col. 5, lines 39 - 45; col. 6, lines 30 - 45 of Perlman] sending the list to any new control object [node N6] that registers [send N6 a DN Hello message] and periodically broadcasting the list of registered control objects to all control objects [designated node periodically sends a DN Hello message, which includes a complete list of nodes, to all of the nodes].

22. As to claim 17, Zondag as modified teaches [col. 5, lines 39 - 45 of Perlman] wherein the list contains an identifier [node identification] and an address [node address] of control objects.

23. As to claim 18, Zondag as modified teaches [col. 6, lines 45 - 50 of Perlman] performing an election if the manager object ceases to function [if designated node drops out of the network...there will be a further exchange of messages to determine new designated node].

24. As to claim 19, Zondag as modified teaches [col. 6, lines 40 - 45 of Perlman] distributing the list to all registered control objects [designated node updates lists and sends copies to the other nodes with the DN Hello messages] if any of the control objects ceases to function [nodes dropping from network].

Response to Arguments

25. Applicant's arguments filed on November 4, 2003 have been considered but are moot in view of the new ground(s) of rejection.

26. Applicant argues that the cited prior art "...does not teach or suggest a controllable device, having an embedded operating system which contains a control object as recited in claims 1, 15, 20 and 28" [p. 11, lines 28 – 31]. The examiner respectfully disagrees because claim 15 does not require the control object to reside in the operating system. Claim 15 recites, "...a plurality of software controllable devices having an embedded operating system and represented by a plurality of control objects..." [claim 15, lines 1 – 3]. Claim 15 merely suggests that the controllable devices are represented by a plurality of control objects and does not require the control object to reside in the embedded operating system. As to a plurality of software controllable devices having an embedded operating system, see the response below.

The applicant argues that the "Zondag controlled devices do not contain embedded operating systems or ARs" [p. 11, lines 21 – 22]. Applicant suggests that control objects of Zondag do not reside in the controlled device because the control objects reside in the controller stations [p. 10, lines 20 – 25 and p. 11, lines 17 – 22]. The examiner respectfully disagrees because the controller and controlled station of Zondag can reside on the same physical device [a controlled station and its controller may reside on the same physical device; col. 7, line 28 – 29]. For example, Zondag teaches that a FAV is a controller station and an example of a FAV is a Set Top Box [col. 8, lines 1 – 7]. The Set Top Box contains at least one AR representing itself and

zero or more ARs representing other devices [col. 11, lines 48 – 55], and the Set Top Box can be controlled using its corresponding AR. The Set Top Box [FAV] is both a controller station and a controllable device and it contains at least one control object [AR]. As to an embedded operating system, Zondag teaches the software elements of a controller station [note: FAV is a controller station and controlled device, see discussion above] reside above a Real-time operating System [col. 8, lines 50 – 67] and Real-time operating Systems are typically used as embedded systems in devices; therefore, the controller station of Zondag contains an embedded operation system. Therefore the FAVs of Zondag reads on the plurality of software controllable devices.

Conclusion

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (703) 305-3406. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (703) 305-9678. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Li B. Zhen
Examiner
Art Unit 2126

lbz
January 15, 2004

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